ANALYSIS OF VOLATILE COMPOUNDS IN CORIANDER

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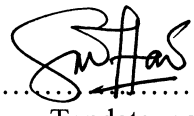

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ABSTRACT

This study focuses on the analysis of volatile compounds in coriander leaves and seeds using solid-phase microextraction (SPME) and subcritical water extraction (SWE). Separation and identification of the compounds were done using gas chromatography with mass spectrometry detector (GC-MSD). Optimization of SPME operating parameters (extraction time, temperature and desorption time) were studied using 85 μm polyacrylate fiber. Optimum SPME conditions of 40 minutes extraction time, 65 ^{o}C extraction temperature and desorption time of 130 seconds were used to analyze fresh coriander leaves, seeds and powder. It was found that the profile of volatile compounds from these samples differs, resulting in the different flavour. SPME combined with GC-MSD can provide a simple and fast method in profiling volatile compounds in coriander. In the application of SWE in extracting essential oil from coriander seeds, the effects of extraction time and extraction temperature on the quantity and quality of the essential oil were evaluated. The SWE method was compared with hydrodistillation method and it was found that the efficiency (g oil/g of coriander) of SWE was 5 times higher than that provided by hydrodistillation with reduced extraction time. In addition, using SWE the composition of the oil can be manipulated by selecting the temperature and adjusting the pressure.